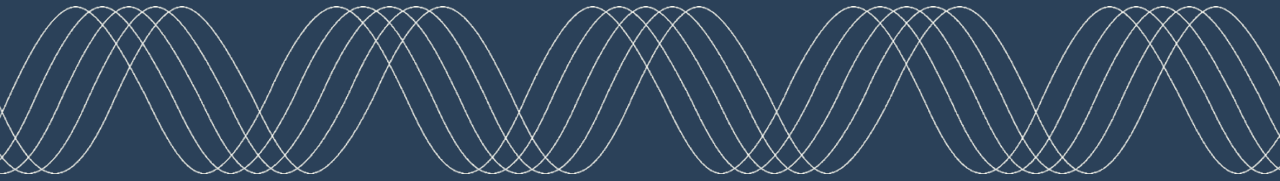


Harborton Reliability Project

Community Meeting
September 2024



Project overview



Photo simulations from two fixed points



HARBORTON RELIABILITY PROJECT

— Existing PGE Transmission Line
— Existing BPA Transmission Line

--- Proposed New Transmission Line
--- Upgrade to Existing Transmission Line

Existing Substation
Photo Location

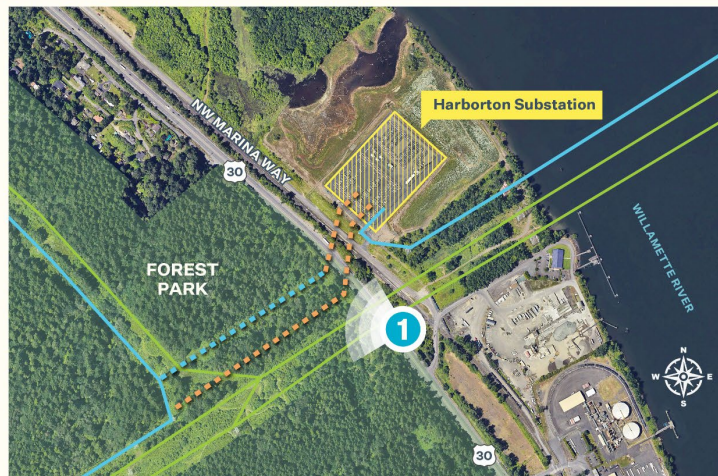


HARBORTON RELIABILITY PROJECT

SIMULATION 1

Ground View

Date: 9/28/2023 Time: 12:28 pm Direction: West



- Existing PGE Transmission Line
- Existing BPA Transmission Line
- Existing Substation
- Proposed New Transmission Line
- Upgrade to Existing Transmission Line
- Photo Location

Photo Simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review. Structure locations, heights, foundation types, structure framing and other design aspects are subject to change as transmission design progresses. Restoration Plan is for illustrative purposes only.

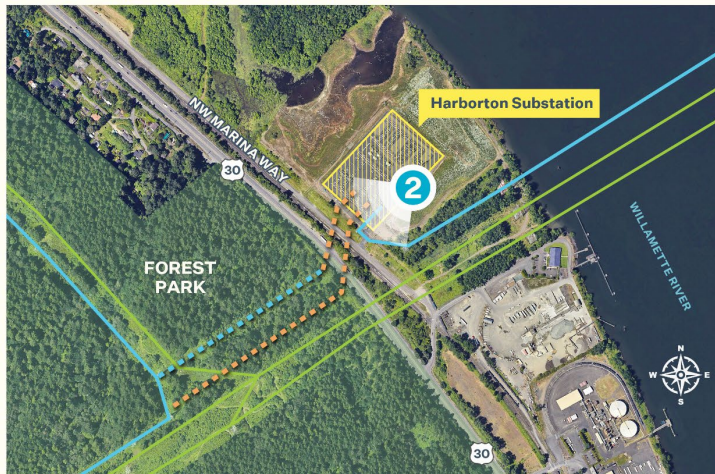


HARBORTON RELIABILITY PROJECT

SIMULATION 2

Drone View

Date: 9/28/2023 Time: 11:48 am Direction: Southwest



- Existing PGE Transmission Line
- Existing BPA Transmission Line
- - - Proposed New Transmission Line
- - - Upgrade to Existing Transmission Line
- Existing Substation
- 2 Photo Location

Photo Simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review. Structure locations, heights, foundation types, structure framing and other design aspects are subject to change as transmission design progresses. Restoration Plan is for illustrative purposes only.



EXISTING CONDITIONS



PROPOSED CONDITIONS

1 YEAR AFTER PLANTING

HARBORTON RELIABILITY PROJECT

SIMULATION 2

Drone View

Date: 9/28/2023 Time: 11:48 am Direction: Southwest



- Existing PGE Transmission Line
- Existing BPA Transmission Line
- Proposed New Transmission Line
- Upgrade to Existing Transmission Line
- Existing Substation
- 2 Photo Location



EXISTING CONDITIONS



PROPOSED CONDITIONS

10 YEARS AFTER PLANTING

Photo Simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review. Structure locations, heights, foundation types, structure framing and other design aspects are subject to change as transmission design progresses. Restoration Plan is for illustrative purposes only.

Sample of alternative projects

PGE looked at 24 alternative projects using set criteria to find a feasible project that would:

- Deliver a second 230 kV source to the Harborton Substation, resolve transmission outage vulnerabilities and support projected energy needs
- Minimize adverse impact to the environment, sensitive areas and community resources
- Minimize adverse impact to homes and businesses
- Meet federal reliability requirements needed in 3 years
- Minimize the impact to customer prices

HARBORTON RELIABILITY PROJECT VS NEW MARINA WAY ALTERNATE ROUTES

	PHASE 3 HARBORTON RELIABILITY PROJECT (PROPOSED PROJECT)	NW MARINA WAY ROUTES (X2)
DELIVERS SECOND 230 KV SOURCE TO HARBORTON, RESOLVES TRANSMISSION OUTAGE VULNERABILITIES, SUPPORTS PROJECTED ENERGY NEEDS	Sequential line shutdowns needed for construction	Displaces an existing transmission line; would not improve transmission reliability in constrained area (SOA)
ENVIRONMENTAL IMPACT TO SENSITIVE AREAS AND COMMUNITY RESOURCES	Selective tree removal in 4.7 acres within existing utility right-of-way in Forest Park	Tree removal north of Forest Park, potentially in Miller Creek or Ennis Creek riparian areas
PROPERTY IMPACT TO HOMES, BUSINESSES	Utilizes existing easements and utility-owned properties	Requires entirely new easements, or purchase of private property, including residential properties
MEETS FEDERAL RELIABILITY REQUIREMENTS NEEDED IN THREE YEARS	Attainable within needed time frame	Additional studies, design and land acquisition or demolition of an existing transmission line and condemnation > 6 years
LOW IMPACT ON CUSTOMER PRICES	~\$10M	>\$26 million + land acquisition costs
MEETS PROJECT CRITERIA	YES	NO

■ ALTERNATIVE MEETS CRITERIA
 ■ UNKNOWN IF CRITERIA IS MET
 ■ DOES NOT MEET CRITERIA



HARBORTON RELIABILITY PROJECT VS TROJAN-EVERGREEN ALTERNATE ROUTE

	PHASE 3 HARBORTON RELIABILITY PROJECT (PROPOSED PROJECT)	NEW 230 KV TROJAN-EVERGREEN DIRECT ROUTE
DELIVERS SECOND 230 KV SOURCE TO HARBORTON, RESOLVES TRANSMISSION OUTAGE VULNERABILITIES, SUPPORTS PROJECTED ENERGY NEEDS	Sequential line shutdowns needed for construction	Would not address overloads in North, Northwest Portland
ENVIRONMENTAL IMPACT TO SENSITIVE AREAS AND COMMUNITY RESOURCES	Selective tree removal in 4.7 acres within existing utility right-of-way in Forest Park	Fragments blocks of intact forest habitat in Columbia and Multnomah counties
PROPERTY IMPACT TO HOMES, BUSINESSES	Utilizes existing easements and utility-owned properties	Requires taking (condemning) substantial new property
MEETS FEDERAL RELIABILITY REQUIREMENTS NEEDED IN THREE YEARS	Attainable within needed time frame	>6-10 years
LOW IMPACT ON CUSTOMER PRICES	~\$10M	~\$245 million
MEETS PROJECT CRITERIA	YES	NO

■ ALTERNATIVE MEETS CRITERIA
 ■ UNKNOWN IF CRITERIA IS MET
 ■ DOES NOT MEET CRITERIA



HARBORTON RELIABILITY PROJECT VS BLUE LAKE-RIVERGATE OR HARBORTON ALTERNATE ROUTE

	PHASE 3 HARBORTON RELIABILITY PROJECT (PROPOSED PROJECT)	NEW 230 KV LINE FROM BLUE LAKE TO RIVERGATE OR HARBORTON
DELIVERS SECOND 230 KV SOURCE TO HARBORTON, RESOLVES TRANSMISSION OUTAGE VULNERABILITIES, SUPPORTS PROJECTED ENERGY NEEDS	Sequential line shutdowns needed for construction	Does not resolve grid overloads. Does not resolve 3-terminal line reliability issues
ENVIRONMENTAL IMPACT TO SENSITIVE AREAS AND COMMUNITY RESOURCES	Selective tree removal in 4.7 acres within existing utility right-of-way in Forest Park	Would require a Willamette River aerial or submarine crossing impacting protected fisheries and other constraints
PROPERTY IMPACT TO HOMES, BUSINESSES	Utilizes existing easements and utility-owned properties	Spans 17 miles in urban areas; would require property acquisition and crossing elevated roads, existing transmission lines
MEETS FEDERAL RELIABILITY REQUIREMENTS NEEDED IN THREE YEARS	Attainable within needed time frame	Planning, construction would exceed 3 years by an undetermined amount
LOW IMPACT ON CUSTOMER PRICES	~\$10M	~\$108 million, not including terminal facilities, easement acquisition, grid reconfigurations and permitting that could double the cost
MEETS PROJECT CRITERIA	YES	NO

■ ALTERNATIVE MEETS CRITERIA
 ■ UNKNOWN IF CRITERIA IS MET
 ■ DOES NOT MEET CRITERIA



★ Phase 3 Harborton Reliability Project (Proposed project)

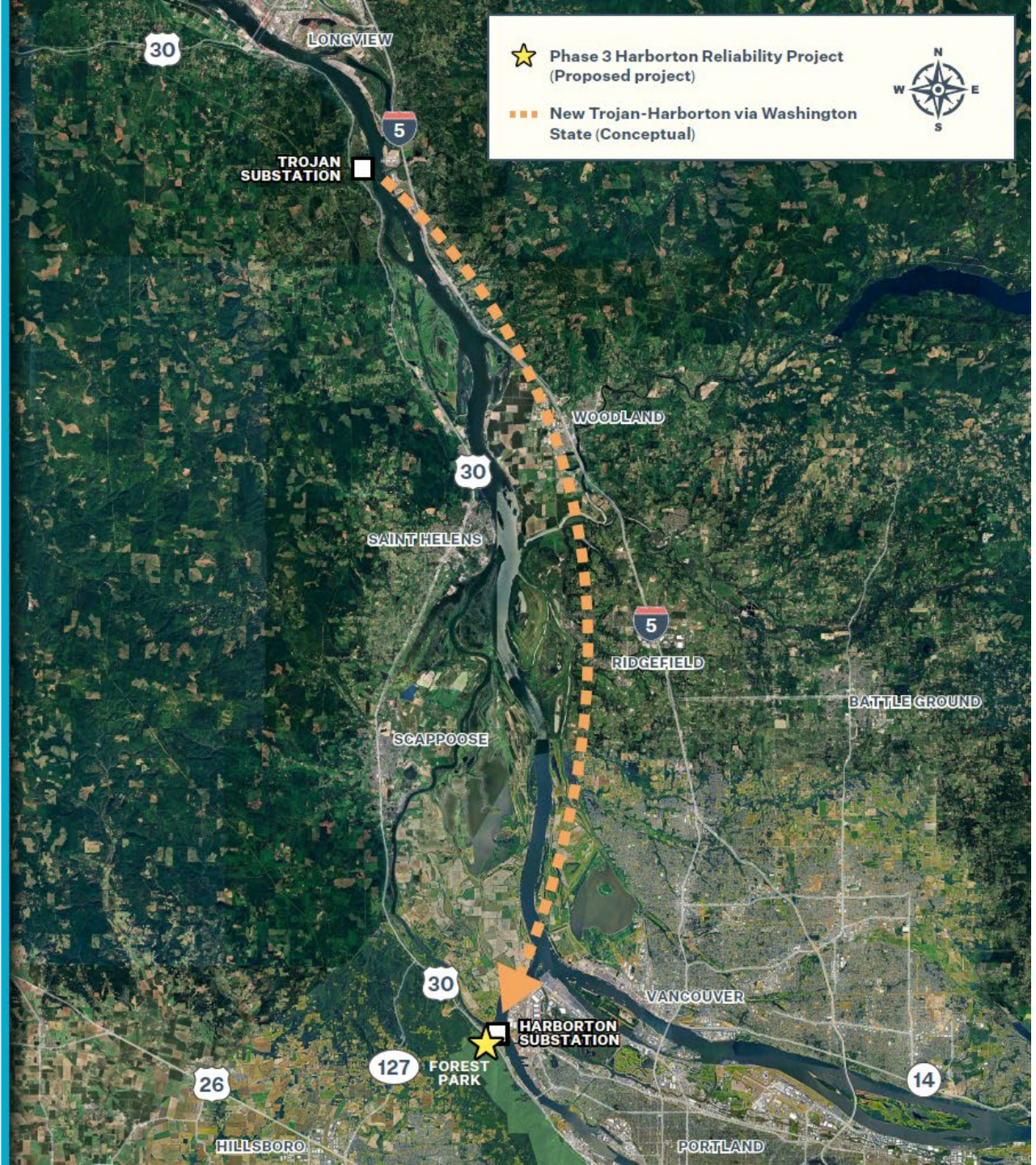
— New 230 kV line from Blue Lake to Rivergate or Harborton (Conceptual)



HARBORTON RELIABILITY PROJECT VS TROJAN-HARBORTON ALTERNATE ROUTE

	PHASE 3 HARBORTON RELIABILITY PROJECT (PROPOSED PROJECT)	NEW TROJAN-HARBORTON VIA WASHINGTON STATE
DELIVERS SECOND 230 KV SOURCE TO HARBORTON, RESOLVES TRANSMISSION OUTAGE VULNERABILITIES, SUPPORTS PROJECTED ENERGY NEEDS	Sequential line shutdowns needed for construction	Would not address broader bottleneck impacting Hillsboro area
ENVIRONMENTAL IMPACT TO SENSITIVE AREAS AND COMMUNITY RESOURCES	Selective tree removal in 4.7 acres within existing utility right-of-way in Forest Park	Would directly affect salmonid species protected by the Endangered Species Act
PROPERTY IMPACT TO HOMES, BUSINESSES	Utilizes existing easements and utility-owned properties	PGE does not own land or easements necessary for this construction
MEETS FEDERAL RELIABILITY REQUIREMENTS NEEDED IN THREE YEARS	Attainable within needed time frame	Interstate permitting, federal review would take ~6-10 years
LOW IMPACT ON CUSTOMER PRICES	~\$10M	~\$135 million, not including the terminal or elevated cost of submarine equipment
MEETS PROJECT CRITERIA	YES	NO

■ ALTERNATIVE MEETS CRITERIA
 ■ UNKNOWN IF CRITERIA IS MET
 ■ DOES NOT MEET CRITERIA



HARBORTON RELIABILITY PROJECT

VS WILSONVILLE AREA-EVERGREEN ALTERNATE ROUTE

	PHASE 3 HARBORTON RELIABILITY PROJECT (PROPOSED PROJECT)	NEW 230 KV LINE FROM WILSONVILLE AREA TO EVERGREEN SUBSTATION
DELIVERS SECOND 230 KV SOURCE TO HARBORTON, RESOLVES TRANSMISSION OUTAGE VULNERABILITIES, SUPPORTS PROJECTED ENERGY NEEDS	Sequential line shutdowns needed for construction	Would not create a transmission pathway to Harborton to mitigate overloads in North, Northwest Portland; limited beneficial transmission capacity
ENVIRONMENTAL IMPACT TO SENSITIVE AREAS AND COMMUNITY RESOURCES	Selective tree removal in 4.7 acres within existing utility right-of-way in Forest Park	New rights-of-way would be required for multiple natural resource area crossings
PROPERTY IMPACT TO HOMES, BUSINESSES	Utilizes existing easements and utility-owned properties	New rights-of-way and condemnation would be required for private property
MEETS FEDERAL RELIABILITY REQUIREMENTS NEEDED IN THREE YEARS	Attainable within needed time frame	~10+ years
LOW IMPACT ON CUSTOMER PRICES	~\$10M	~\$108 million, not including terminal facilities, easement acquisition, grid reconfigurations and permitting that could double the cost
MEETS PROJECT CRITERIA	YES	NO

■ ALTERNATIVE MEETS CRITERIA
 ■ UNKNOWN IF CRITERIA IS MET
 ■ DOES NOT MEET CRITERIA



HARBORTON RELIABILITY PROJECT

VS UNDERGROUND SEGMENT FROM HARBORTON-TOWER 2996 ALTERNATE ROUTE

	PHASE 3 HARBORTON RELIABILITY PROJECT (PROPOSED PROJECT)	UNDERGROUND NEW 230 KV SEGMENT FROM HARBORTON TO TOWER 2996
DELIVERS SECOND 230 KV SOURCE TO HARBORTON, RESOLVES TRANSMISSION OUTAGE VULNERABILITIES, SUPPORTS PROJECTED ENERGY NEEDS	Sequential line shutdowns needed for construction	Meets project needs
ENVIRONMENTAL IMPACT TO SENSITIVE AREAS AND COMMUNITY RESOURCES	Selective tree removal in 4.7 acres within existing utility right-of-way in Forest Park	Would require removing all trees, vegetation over duct bank, at temporary construction work areas. Significantly more heavy equipment, longer construction time. Requires ongoing clearance over buried ducts to prevent root encroachment. Would require removing public access to isolate facilities
PROPERTY IMPACT TO HOMES, BUSINESSES	Utilizes existing easements and utility-owned properties	
MEETS FEDERAL RELIABILITY REQUIREMENTS NEEDED IN THREE YEARS	Attainable within needed time frame	
LOW IMPACT ON CUSTOMER PRICES	~\$10M	Costs estimated 5-10x higher than overhead construction
MEETS PROJECT CRITERIA	YES	NO

■ ALTERNATIVE MEETS CRITERIA
 ■ UNKNOWN IF CRITERIA IS MET
 ■ DOES NOT MEET CRITERIA

